

**JAPANESE**

[JP, 11-048856, A]

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Inventor: Toshihide Takahashi

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CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE  
INVENTION TECHNICAL PROBLEM MEANS DESCRIPTION OF DRAWINGS DRAWINGS

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[Translation done.]

1,11-04888, A [DETAILED DESCRIPTION] Page 1 of 6

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the lamp equipment of the automobile which raised the appearance quality of a car, and the installation workability to the car body of a lamp unit.

[0002]

[A related background technique] If it is in the lamp attachment equipment which arranges the lamp unit arranged in this kind of corner section of a car so that the shell plate member of a car may be adjoined, it is necessary to position a lamp unit from the demand on the design of a car correctly to a shell plate member, and to make a uniform field to the corner side formed in the corner section of a car. Moreover, since such a lamp unit usually turns to a shell plate member side and it is arranged, opening of a lamp stowage is continued and prepared in the shell plate member. In this case, a shell plate member is that that edge is attached in a car body through a bracket, and, thereby, the installation reinforcement to the car-body body of a shell plate member is fully secured. Therefore, in order to attach such a lamp unit in a lamp stowage, in the end by the side of the car-body corner section, as a lamp unit is concluded from the inside of a car-body body to the bracket of a shell plate member, it is necessary to make it not exposed [ a bolt etc. ] to the car-body exterior, and, for this reason, the conclusion activity of a lamp unit is very complicated.

[0003] In addition, if it is in the well-known lighting fixture for automobiles currently indicated by JP,2-84743,U, the lighting fixture body is what is inserted in the hold section which carried out opening to the corner section of a bumper, and which was prepared in it, and a lighting fixture body is supported in the end by engagement to an engagement projection and opening of the hold section, and is being supported by engagement into a stud bolt and a slide slot by the other end again, respectively. According to this well-known lighting fixture for automobiles, it is thought that it is easily fixable, without concluding a lighting fixture body from the car-body outside.

[0004]

[Problem(s) to be Solved by the Invention] However, if it is in the well-known lighting fixture for automobiles mentioned above, it is difficult for the lighting fixture body of what can make easy installation to the hold section of a lighting fixture body for engagement support to only be carried out at the hold section, to carry out positioning immobilization of the lighting fixture body correctly to the hold section, and to make the external surface of a lighting fixture body agree completely in the corner side of a bumper.

[0005] Since the end of a lamp unit is being fixed to the bracket of a shell plate member with the lamp attachment equipment described previously on the other hand, Even if a lamp unit is certainly fixable to a bracket, when the bracket itself is not correctly positioned to the shell plate member, After attaching a lamp unit in a lamp stowage, in respect of a corner, a level difference is produced between a shell plate member and a lamp unit, and there is a possibility of reducing the appearance quality of a car remarkably.

[0006] The place which this invention was made based on the situation mentioned above, and is made

into that purpose can position a lamp unit correctly to a shell plate member, can complete the corner side of a car smoothly, and is to offer the lamp attachment equipment of the automobile which can make installation of a lamp unit easy moreover.

[0007]

[Means for Solving the Problem] If it is in the lamp attachment equipment of the automobile of this invention in order to attain the above-mentioned purpose, in case a lamp unit is attached, a car-body body is equipped with a lamp unit by hanging equipment, and it is positioned by either the car cross direction or the cross direction to a shell plate member at this time. In addition, since hanging equipment is enabling displacement of a lamp unit to this positioning direction at the time of installation of a lamp unit, a level difference does not arise between a lamp unit and a shell plate member after attachment of a lamp unit.

[0008] Moreover, such a lamp unit can be easily inserted in from either the car cross direction or a cross direction to a car-body body, and since, as for a lamp unit, a gap in the car cross direction and a cross direction is restrained in that case, a lamp unit does not shift to a shell plate member next.

[0009]

[Embodiment of the Invention] Reference of drawing 1 shows the car 1 with which the lamp attachment equipment of an example was applied. As shown in this drawing, in the front corner section 2 of a car 1, the lamp unit 4 of a right-and-left pair is arranged, and from the front of a car 1, these lamp unit 4 turns to the shell plate member 6, i.e., front fender, side on either side, and is smoothly connected with these front fenders 6. Therefore, the front corner side which consists of a lens side of the lamp unit 4 and a front face of a front fender 6 is smoothly formed in the front corner section 2 on either side. In addition, the car with which the lamp attachment equipment of this automobile is applied is not limited only to the passenger-car type car as [ shown in drawing 1 ]. Moreover, the corner section by which a lamp unit is arranged may be the rear corner section of a car.

[0010] Each lamp unit 4 is arranged in the lamp stowage 8 which carried out opening to the front corner side mentioned above and which was established in it, and this lamp stowage 8 was surrounded by the front fender 6, the bumper 10, the front grille 12, and the hood 14 in that perimeter. If drawing 2 is referred to, from the top face, the front corner section 2 on the left-hand side of a car 1 is expanded, and is shown. Moreover, the interior of the lamp stowage 8 except a hood 14 is exposed and shown in this drawing, and the horizontal section in a front corner side is shown about the front fender 6.

[0011] The lamp unit 4 consists of a front-combination-lamp unit which equipped one with head-lamp 4a, clearance-lamp 4b, and front-turn-signal-lamp 4c, and front-turn-signal-lamp 4c is arranged for head-lamp 4a and clearance-lamp 4b towards the side again towards the front of a car 1, respectively. In addition, the lamp unit 4 may be a lamp unit which it is not limited to the above combination lamps and only a head lamp equips with auxiliary lamps, such as a fog lamp or a cornering lamp, especially.

[0012] The lamp unit 4 of this example is prolonged in the cross direction in the front corner section 2 from the both ends of the front grille 12 of a car, respectively so that clearly also from drawing 2 . Two upper brackets 18 are projected and formed in the car-body side from the upper part, and the side bracket 20 is projected and formed in the lamp housing 16 of the lamp unit 4 from the end section by the side of a front grille 12.

[0013] That is, the lamp unit 4 is concluded with the bolt through the side bracket 20 and the upper bracket 18 by the upper bar 26 which connects the radiator core support 22, and this radiator core support 22 and the front fender apron 24 on either side, respectively, and also it is being fixed to the front fender 6 and the fender bracket 30 through the pins 32 and 34 mentioned later, respectively by the other end of that car side.

[0014] A front fender 6 is a car-body body, i.e., the shell plate member which should be attached in the front body, and that front end section is attached in the front fender apron 18 through the fender bracket 30 in this example so that it may be well-known. Therefore, this fender bracket 30 also forms a car-body body. Here, the lamp stowage 8 is established in the front fender 6 in part, and since it is necessary to secure the tooth space for arranging the lamp unit 4 in this lamp stowage 8, the front end section of a front fender 6 cannot be attached to the front fender apron 24 direct picking. So, the installation

reinforcement of a front fender 6 is suitably secured by attaching a front fender 6 in the front fender apron 24 through the fender bracket 30.

[0015] Reference of drawing 3 shows the perspective view which expanded the front end section of a front fender 6. In the front end section of a front fender 6, the fender bracket 30 connects the upper part and flank with a L character configuration, and is prepared, and when the lamp unit 4 is arranged in the lamp stowage 8, interference with the fender bracket 30 and a lamp housing 16 is avoided so that clearly from drawing 2 and drawing 3. The section (not shown) is prepared by return, and once the part which was turned up towards that inferior-surface-of-tongue side and which extends caudad is turned up by the front end upper part of a front fender 6 at a level with the car-body inside in the front end flank of a front fender 6, it bends further caudad, and the inner flange 36 which should become this part with a joint with a bumper 10 is formed in it at the detail. The fender bracket 30 is welded, respectively in the inferior surface of tongue of these clinch section, and the inside of the inner flange 22, and is being fixed to the front end section of a front fender 6.

[0016] Moreover, it is bent along with the opening side edge of the lamp stowage 8, and the flange 38 which projects in this lamp stowage 8 makes it one, and is prepared in the front end flank of a front fender 6. Moreover, the hole 40 is formed in this flange 38 towards the front face of a car 1. The hole 46 with which the clip 44 which was set up from a part for that horizontal level, and which it starts, and the section 42 is formed and is later mentioned in this standup section 42 should be inserted in the fender bracket 30 on the other hand is formed.

[0017] In the production line of an automobile, the lamp unit 4 is attached after the assembly of a car body. At this time, the lamp unit 4 is inserted in, put together and arranged from that front opening in the lamp stowage 8, and that positioning immobilization is made to a car body with the pin 32 which forms a positioning device, a flange 38, a hole 40, the pin 34 that forms hanging equipment, and a clip 44, and, below, it explains positioning immobilization of the lamp unit 4 by these positioning devices and stop equipment.

[0018] First, if drawing 4 is referred to, the fixed-end section by the pins 32 and 34 of the lamp unit 4 is expanded, and is shown. These two pins 32 and 34 protrude horizontally towards the lamp housing 16 empty-vehicle object back of the lamp unit 4, respectively, and its axis of these pins 32 and 34 is mutually parallel. The pin 32 of the car-body side is inserted more in the hole 46 of a flange 38 among these. In addition, the base of a clip 44 is inserted in the standup section of the fender bracket 30 mentioned above, and the clip 44 was stopped by the fender bracket 30 in this condition, and the head of the pin 34 of another side is put.

[0019] If the cross section of the pin 32 which meets the V-V line in drawing 4 is shown in drawing 5 and this drawing is referred to, the fitting condition of a pin 32 over the hole 40 of a flange 38 is shown in the detail. In addition, these pins 32 and a hole 40 make the engagement means in a fixed means. As shown in drawing 5, the pin 32 has the cross section of an abbreviation cross-joint configuration, and the both ends of the right and left are in contact with the common-law marriage of a hole 40. On the other hand, the hole 40 is making the ellipse configuration extended to the lengthwise direction, so sees it in the cross section of this drawing, and the both ends of the upper and lower sides of a pin 32 are not in contact with the common-law marriage of a hole 40. In addition, since it sees by drawing 4, the both ends of right and left of a pin 32 have few taper angles toward the tip from the base and it has the still bigger taper angle to the point, even if the both ends of right and left of a pin 32 touch the common-law marriage of a hole 40, a pin 32 can be guided into a hole 40 from the tip, and can be smoothly inserted in a hole 40.

[0020] Therefore, when the lamp unit 4 is pushed in from the front opening in the lamp stowage 8, Even if the axis of a pin 32 is slightly shifted crosswise [ car ] to the core of a hole 40 After the gap was corrected when a pin 32 was inserted in a hole 40, as mentioned above, and the lamp unit 4 is inserted in completely and a pin 32 is completely inserted in a hole 40, a pin 32 does not shift crosswise [ the / car ] to a hole 40. At this time, since the width of face of those right and left becomes large as a pin 32 is inserted in a hole 40, it is closed to a hole 40, and becomes the relation of eye \*\*, and a pin 32 is not easily extracted from a hole 40.

[0021] Here, in the front corner section 2 of a car body, the side edge of the lamp unit 4 and the opening side edge of the lamp stowage 8 are fabricated, respectively so that it may agree mutually in the condition that the lamp unit 4 has been arranged in the lamp stowage 8. At this time, as shown in drawing 5, the pin 32 is arranged in the location where that core consists the predetermined spacing L horizontally from the side edge lower limit of the lamp unit 4, and, on the other hand, the hole 40 is arranged in the location where that core consists the predetermined spacing L horizontally from the opening side edge lower limit of the lamp stowage 8. Therefore, when a pin 32 is inserted in a hole 40, the side edge of the lamp unit 4 and the opening side edge of the lamp stowage 8 can be made to agree completely because the center position of these pins 32 and a hole 40 agrees horizontally.

[0022] Next, reference of drawing 6 shows the cross section of the pin 34 which meets the VI-VI line in drawing 4, and a clip 44. In addition, these pins 34 and a clip 44 make the hanging means in a fixed means. As shown in this drawing, a clip 44 is that that base 44b is inserted in the hole 46 prepared in the standup section 42 of the fender bracket 30, and is certainly attached to this fender bracket 30.

Moreover, a pin 34 is that the thread part is thrust into the installation boss section of a lamp housing 16, and is being fixed to the lamp unit 4. 34h of heads of a pin 34 is formed in the hemispheric configuration by which the tip was cut off, and the diameter of the hemisphere in 34h of this head serves as size from the outer diameter of a pin shaft. In addition, such a pin 34 is not restricted to what is thrust to the lamp housing 16, but may protrude by making it one from the lamp housing 16.

[0023] In the condition of having been attached in the fender bracket 30, the body of the clip 44 which puts 34h of heads of a pin 34 continues crosswise [ car ], and has the uniform cross-section configuration. The body of a clip 44 is seen in the cross section shown in drawing 6, and it is made one from base 44b, and turns to a front face. Namely, a projection, It consists of 44g of guide parts of the vertical pair which opens mutually and is prolonged towards that front from the edge of the upper and lower sides of pinching partial 44c of the shape of an abbreviation C typeface which puts 34h of heads of a pin 34 from the upper and lower sides (it has become reverse C typeface-like in this drawing), and this pinching partial 44c. Moreover, the bore of the cylinder in pinching partial 44c has carried out abbreviation agreement at the diameter of the hemisphere in 34h of heads of a pin 34. In addition, such a clip 44 is manufactured for example, from polyacetal material, and can give the suitable elasticity for base 44b and pinching partial 44c.

[0024] Reference of drawing 7 shows the situation in case a pin 34 is put to such a clip 44. If the lamp unit 4 is pushed in in the said drawing Nakaya mark direction in the lamp stowage 8 from front opening of the lamp stowage 8, as the two-dot chain line in the said drawing shows, first, 34h of heads of a pin 34 will contact 44g of guide parts of a clip 44, and it will be shown to 34h of heads to them by the inclined plane of 44g of guide parts towards the inside of pinching partial 44c of a clip 44 at this time. Furthermore, if the lamp unit 4 is pushed in, as 34h of heads of a pin 34 extends pinching partial 44c of a clip 44, they will advance between this pinching partial 44c. And if the lamp unit 4 is inserted in completely, as shown in drawing 6, 34h of heads of a pin 34 will be completely put between pinching partial 44c of a clip 44.

[0025] Therefore, when the lamp unit 4 is pushed in from the front opening in the lamp stowage 8, Even if the axis of a pin 34 is slightly shifted in the vertical direction from the core of pinching partial 44c of a clip 44 The gap is corrected when 34h of heads of a pin 34 is shown at 44g of guide parts, as mentioned above. After the lamp unit 4 is inserted in completely and 34h of heads is completely put between pinching partial 44c, a pin 34 does not shift to the upper and lower sides and cross direction to a clip 44.

[0026] As mentioned above, when the lamp unit 4 is inserted in in the lamp stowage 8, the lamp unit 4 is certainly positioned about the car cross direction by inserting in a pin 32 to a hole 40 by engagement to these pins 32 and a hole 40. On the other hand, by putting a pin 34 to a clip 44, the variation rate to the lamp unit 4 order and the vertical direction is restrained, and the lamp unit 4 is certainly hung on the fender bracket 30. Positioning to that car cross direction is performed to coincidence, pushing in the lamp unit 4, in case the lamp unit 4 is inserted in in the lamp stowage 8, since a pin 34 can be displaced crosswise [ car ] in case a pin 34 is put between a clip 44 at this time.

[0027] And if the lamp unit 4 is inserted in in the lamp stowage 8, since positioning of the bolthole of

the conclusion implement 18 which the lamp unit 4 was fixed by hanging with a pin 34 and a clip 44 at that edge, and others mentioned above, i.e., an upper bracket, and the side bracket 20 will also be made by coincidence, a conclusion activity [ in those parts ] can be done easily after this.

[0028] According to the lamp attachment equipment of the example mentioned above, the front corner side of a car can be made to form smoothly without a level difference by positioning the lamp unit 4 correctly to the lamp stowage 8 6, i.e., the front fender which makes a shell plate member. Moreover, since it is hung and equipped with the lamp unit 4 to the fender bracket 30 which forms a car-body body, it does not need to do a conclusion activity in the car side edge section of the lamp unit 4, and can apply it also to the car which cannot secure conclusion workspace in this side edge section easily.

[0029] Moreover, the easy activity which pushes in the lamp unit 4 from the front opening in the lamp stowage 8 can perform such positioning immobilization of the lamp unit 4. Therefore, even if the fender bracket 30 is not correctly positioned to the front fender 6 depending on the car produced, dispersion by location gap can be compensated for every car, and positioning immobilization of the lamp unit 4 can always be correctly carried out into the lamp stowage 8.

[0030] Furthermore, since the both ends of right and left of a pin 32 serve as a taper configuration, good engagement of a pin 32 and a hole 40 can be obtained. Moreover, when removing the lamp unit 4 by request that it is hard to drop out carelessly after being easy to show around at 44g of guide parts and putting 34h of heads between pinching partial 34c, since 34h of heads of a pin 34 had become globular form-like, suitable tensile force can cancel the hanging easily.

[0031] In addition, a positioning fixed activity of the lamp unit 4 which was mentioned above is suitable for the mechanical activity using an industrial robot. As the lamp unit 4 inserts in and being mentioned above, at the time of doubling namely, a pin 32 Even if the axis is slightly shifted from the core of a hole 40, it can be smoothly inserted in a hole 40. Moreover, the pin 34 Since 34h of heads can be shown and it can be certainly put between a clip 44 even if the axis is slightly shifted from the core of a clip 44 The lamp unit 4 inserts in, it is not necessary to tune these locations finely, and the engagement to a pin 32 and a hole 40 and hanging of a pin 34 and a clip 44 can be made to constitute easily in a doubling activity.

[0032] this invention is not restrained by one example mentioned above, and can deform into versatility. For example, the cross section of a pin 32 may not be restricted to a cross-joint configuration as shown in drawing 5 , but may be a circle configuration and elliptical. Moreover, about a pin 34, it is good also considering the longitudinal section of 34h of heads as an arrow-head configuration. In this case, the inside configuration of pinching partial 44c of the corresponding clip 44 is also united, and is made into an arrow-head configuration. In addition, the guide side of 44g of guide parts can also be made into the taper curved surface opened for example, not only an inclination flat surface like one example but in the shape of a earthenware mortar about a clip 44.

✓ [0033] In addition, in the combination of a pin 32, a hole 40 or a pin 34, and a clip 44, a hole 40 can also be formed in a lamp housing 16, or it can start, a pin 34 can be formed [ a pin 32 can be formed in a flange 38 ] in the section 42, and a clip 44 can also be formed in a lamp housing 16. Even in this case, positioning immobilization of the lamp unit 4 can be correctly carried out by inserting the lamp unit 4 in the lamp stowage 8 like the example mentioned above.

[0034] Moreover, the attachment direction at the time of the lamp unit 4 being attached may not be restricted to a car cross direction like an example, but may be the cross direction. In this case, positioning of the lamp unit 4 by the pointing device is made in the cross direction of a car. In addition, as mentioned above, even when this lamp attachment equipment is applied to the rear corner section of a car, the rear corner side of a car can be smoothly formed like an example.

[0035]

[Effect of the Invention] As explained above, while the installation workability of a lamp unit improves according to the lamp attachment equipment of the automobile of this invention, the corner side of a car can be formed smoothly certainly and the appearance quality of the completed car can be raised.

[Translation done.]

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TECHNICAL FIELD

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[Field of the Invention] This invention relates to the lamp equipment of the automobile which raised the appearance quality of a car, and the installation workability to the car body of a lamp unit.

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EFFECT OF THE INVENTION

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[Effect of the Invention] As explained above, while the installation workability of a lamp unit improves according to the lamp attachment equipment of the automobile of this invention, the corner side of a car can be formed smoothly certainly and the appearance quality of the completed car can be raised.

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PRIOR ART

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[A related background technique] If it is in the lamp attachment equipment which arranges the lamp unit arranged in this kind of corner section of a car so that the shell plate member of a car may be adjoined, it is necessary to position a lamp unit from the demand on the design of a car correctly to a shell plate member, and to make a uniform field to the corner side formed in the corner section of a car. Moreover, since such a lamp unit usually turns to a shell plate member side and it is arranged, opening of a lamp stowage is continued and prepared in the shell plate member. In this case, a shell plate member is that that edge is attached in a car body through a bracket, and, thereby, the installation reinforcement to the car-body body of a shell plate member is fully secured. Therefore, in order to attach such a lamp unit in a lamp stowage, in the end by the side of the car-body corner section, as a lamp unit is concluded from the inside of a car-body body to the bracket of a shell plate member, it is necessary to make it not exposed [ a bolt etc. ] to the car-body exterior, and, for this reason, the conclusion activity of a lamp unit is very complicated.

[0003] In addition, if it is in the well-known lighting fixture for automobiles currently indicated by JP,2-84743,U, the lighting fixture body is what is inserted in the hold section which carried out opening to the corner section of a bumper, and which was prepared in it, and a lighting fixture body is supported in the end by engagement to an engagement projection and opening of the hold section, and is being supported by engagement into a stud bolt and a slide slot by the other end again, respectively. According to this well-known lighting fixture for automobiles, it is thought that it is easily fixable, without concluding a lighting fixture body from the car-body outside.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the perspective view of the car with which the lamp attachment equipment of an example was applied.

[Drawing 2] It is drawing showing the lamp unit attached in the lamp stowage.

[Drawing 3] They are the front end section of a front fender, and the perspective view of a fender bracket.

[Drawing 4] It is drawing having expanded and shown the fixed-end section of a lamp unit.

[Drawing 5] It is the sectional view which meets the V-V line in drawing 4.

[Drawing 6] It is the sectional view which meets the VI-VI line in drawing 4.

[Drawing 7] It is the sectional view which meets the VI-VI line in drawing 4.

[Description of Notations]

4 Lamp Unit

6 Front Fender

30 Fender Bracket

32 Pin

34 Pin

38 Flange

44 Clip

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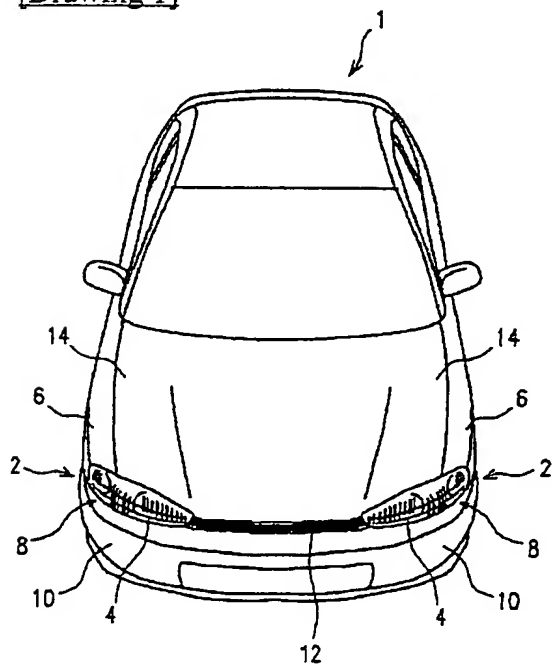
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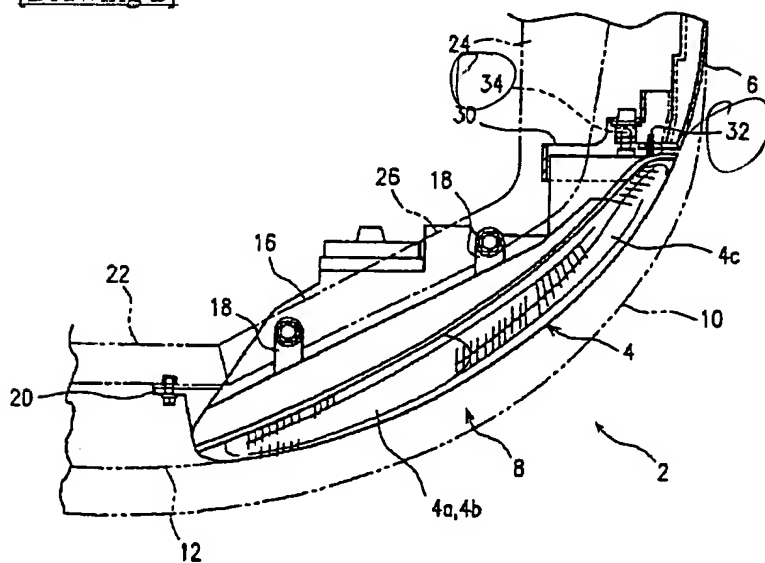
DRAWINGS

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[Drawing 1]



[Drawing 2]



[Drawing 3]

marriage of a hole 40, a pin 32 can be guided into a hole 40 from the tip, and can be smoothly inserted in a hole 40.

[0020] Therefore, when the lamp unit 4 is pushed in from the front opening in the lamp stowage 8, Even if the axis of a pin 32 is slightly shifted crosswise [ car ] to the core of a hole 40 After the gap was corrected when a pin 32 was inserted in a hole 40, as mentioned above, and the lamp unit 4 is inserted in completely and a pin 32 is completely inserted in a hole 40, a pin 32 does not shift crosswise [ the / car ] to a hole 40. At this time, since the width of face of those right and left becomes large as a pin 32 is inserted in a hole 40, it is closed to a hole 40, and becomes the relation of eye \*\*, and a pin 32 is not easily extracted from a hole 40.

[0021] Here, in the front corner section 2 of a car body, the side edge of the lamp unit 4 and the opening side edge of the lamp stowage 8 are fabricated, respectively so that it may agree mutually in the condition that the lamp unit 4 has been arranged in the lamp stowage 8. At this time, as shown in drawing 5 , the pin 32 is arranged in the location where that core consists the predetermined spacing L horizontally from the side edge lower limit of the lamp unit 4, and, on the other hand, the hole 40 is arranged in the location where that core consists the predetermined spacing L horizontally from the opening side edge lower limit of the lamp stowage 8. Therefore, when a pin 32 is inserted in a hole 40, the side edge of the lamp unit 4 and the opening side edge of the lamp stowage 8 can be made to agree completely because the center position of these pins 32 and a hole 40 agrees horizontally.

[0022] Next, reference of drawing 6 shows the cross section of the pin 34 which meets the VI-VI line in drawing 4 , and a clip 44. In addition, these pins 34 and a clip 44 make the hanging means in a fixed means. As shown in this drawing, a clip 44 is that that base 44b is inserted in the hole 46 prepared in the standup section 42 of the fender bracket 30, and is certainly attached to this fender bracket 30. Moreover, a pin 34 is that the thread part is thrust into the installation boss section of a lamp housing 16, and is being fixed to the lamp unit 4. 34h of heads of a pin 34 is formed in the hemispheric configuration by which the tip was cut off, and the diameter of the hemisphere in 34h of this head serves as size from the outer diameter of a pin shaft. In addition, such a pin 34 is not restricted to what is thrust to the lamp housing 16, but may protrude by making it one from the lamp housing 16.

[0023] In the condition of having been attached in the fender bracket 30, the body of the clip 44 which puts 34h of heads of a pin 34 continues crosswise [ car ], and has the uniform cross-section configuration. The body of a clip 44 is seen in the cross section shown in drawing 6 , and it is made one from base 44b, and turns to a front face. Namely, a projection, It consists of 44g of guide parts of the vertical pair which opens mutually and is prolonged towards that front from the edge of the upper and lower sides of pinching partial 44c of the shape of an abbreviation C typeface which puts 34h of heads of a pin 34 from the upper and lower sides (it has become reverse C typeface-like in this drawing), and this pinching partial 44c. Moreover, the bore of the cylinder in pinching partial 44c has carried out abbreviation agreement at the diameter of the hemisphere in 34h of heads of a pin 34. In addition, such a clip 44 is manufactured for example, from polyacetal material, and can give the suitable elasticity for base 44b and pinching partial 44c.

[0024] Reference of drawing 7 shows the situation in case a pin 34 is put to such a clip 44. If the lamp unit 4 is pushed in in the said drawing Nakaya mark direction in the lamp stowage 8 from front opening of the lamp stowage 8, as the two-dot chain line in the said drawing shows, first, 34h of heads of a pin 34 will contact 44g of guide parts of a clip 44, and it will be shown to 34h of heads to them by the inclined plane of 44g of guide parts towards the inside of pinching partial 44c of a clip 44 at this time. Furthermore, if the lamp unit 4 is pushed in, as 34h of heads of a pin 34 extends pinching partial 44c of a clip 44, they will advance between this pinching partial 44c. And if the lamp unit 4 is inserted in completely, as shown in drawing 6 , 34h of heads of a pin 34 will be completely put between pinching partial 44c of a clip 44.

[0025] Therefore, when the lamp unit 4 is pushed in from the front opening in the lamp stowage 8, Even if the axis of a pin 34 is slightly shifted in the vertical direction from the core of pinching partial 44c of a clip 44 The gap is corrected when 34h of heads of a pin 34 is shown at 44g of guide parts, as mentioned above. After the lamp unit 4 is inserted in completely and 34h of heads is completely put between

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TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] However, if it is in the well-known lighting fixture for automobiles mentioned above, it is difficult for the lighting fixture body of what can make easy installation to the hold section of a lighting fixture body for engagement support to only be carried out at the hold section, to carry out positioning immobilization of the lighting fixture body correctly to the hold section, and to make the external surface of a lighting fixture body agree completely in the corner side of a bumper.

[0005] Since the end of a lamp unit is being fixed to the bracket of a shell plate member with the lamp attachment equipment described previously on the other hand, Even if a lamp unit is certainly fixable to a bracket, when the bracket itself is not correctly positioned to the shell plate member, After attaching a lamp unit in a lamp stowage, in respect of a corner, a level difference is produced between a shell plate member and a lamp unit, and there is a possibility of reducing the appearance quality of a car remarkably.

[0006] The place which this invention was made based on the situation mentioned above, and is made into that purpose can position a lamp unit correctly to a shell plate member, can complete the corner side of a car smoothly, and is to offer the lamp attachment equipment of the automobile which can make installation of a lamp unit easy moreover.

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[Translation done.]

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- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

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MEANS

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[Means for Solving the Problem] If it is in the lamp attachment equipment of the automobile of this invention in order to attain the above-mentioned purpose, in case a lamp unit is attached, a car-body body is equipped with a lamp unit by hanging equipment, and it is positioned by either the car cross direction or the cross direction to a shell plate member at this time. In addition, since hanging equipment is enabling displacement of a lamp unit to this positioning direction at the time of installation of a lamp unit, a level difference does not arise between a lamp unit and a shell plate member after attachment of a lamp unit.

[0008] Moreover, such a lamp unit can be easily inserted in from either the car cross direction or a cross direction to a car-body body, and since, as for a lamp unit, a gap in the car cross direction and a cross direction is restrained in that case, a lamp unit does not shift to a shell plate member next.

[0009]

[Embodiment of the Invention] Reference of drawing 1 shows the car 1 with which the lamp attachment equipment of an example was applied. As shown in this drawing, in the front corner section 2 of a car 1, the lamp unit 4 of a right-and-left pair is arranged, and from the front of a car 1, these lamp unit 4 turns to the shell plate member 6, i.e., front fender, side on either side, and is smoothly connected with these front fenders 6. Therefore, the front corner side which consists of a lens side of the lamp unit 4 and a front face of a front fender 6 is smoothly formed in the front corner section 2 on either side. In addition, the car with which the lamp attachment equipment of this automobile is applied is not limited only to the passenger-car type car as [ shown in drawing 1 ]. Moreover, the corner section by which a lamp unit is arranged may be the rear corner section of a car.

[0010] Each lamp unit 4 is arranged in the lamp stowage 8 which carried out opening to the front corner side mentioned above and which was established in it, and this lamp stowage 8 was surrounded by the front fender 6, the bumper 10, the front grille 12, and the hood 14 in that perimeter. If drawing 2 is referred to, from the top face, the front corner section 2 on the left-hand side of a car 1 is expanded, and is shown. Moreover, the interior of the lamp stowage 8 except a hood 14 is exposed and shown in this drawing, and the horizontal section in a front corner side is shown about the front fender 6.

[0011] The lamp unit 4 consists of a front-combination-lamp unit which equipped one with head-lamp 4a, clearance-lamp 4b, and front-turn-signal-lamp 4c, and front-turn-signal-lamp 4c is arranged for head-lamp 4a and clearance-lamp 4b towards the side again towards the front of a car 1, respectively. In addition, the lamp unit 4 may be a lamp unit which it is not limited to the above combination lamps and only a head lamp equips with auxiliary lamps, such as a fog lamp or a cornering lamp, especially.

[0012] The lamp unit 4 of this example is prolonged in the cross direction in the front corner section 2 from the both ends of the front grille 12 of a car, respectively so that clearly also from drawing 2 . Two upper brackets 18 are projected and formed in the car-body side from the upper part, and the side bracket 20 is projected and formed in the lamp housing 16 of the lamp unit 4 from the end section by the side of a front grille 12.

[0013] That is, the lamp unit 4 is concluded with the bolt through the side bracket 20 and the upper bracket 18 by the upper bar 26 which connects the radiator core support 22, and this radiator core

support 22 and the front fender apron 24 on either side, respectively, and also it is being fixed to the front fender 6 and the fender bracket 30 through the pins 32 and 34 mentioned later, respectively by the other end of that car side.

[0014] A front fender 6 is a car-body body, i.e., the shell plate member which should be attached in the front body, and that front end section is attached in the front fender apron 18 through the fender bracket 30 in this example so that it may be well-known. Therefore, this fender bracket 30 also forms a car-body body. Here, the lamp stowage 8 is established in the front fender 6 in part, and since it is necessary to secure the tooth space for arranging the lamp unit 4 in this lamp stowage 8, the front end section of a front fender 6 cannot be attached to the front fender apron 24 direct picking. So, the installation reinforcement of a front fender 6 is suitably secured by attaching a front fender 6 in the front fender apron 24 through the fender bracket 30.

[0015] Reference of drawing 3 shows the perspective view which expanded the front end section of a front fender 6. In the front end section of a front fender 6, the fender bracket 30 connects the upper part and flank with a L character configuration, and is prepared, and when the lamp unit 4 is arranged in the lamp stowage 8, interference with the fender bracket 30 and a lamp housing 16 is avoided so that clearly from drawing 2 and drawing 3. The section (not shown) is prepared by return, and once the part which was turned up towards that inferior-surface-of-tongue side and which extends caudad is turned up by the front end upper part of a front fender 6 at a level with the car-body inside in the front end flank of a front fender 6, it bends further caudad, and the inner flange 36 which should become this part with a joint with a bumper 10 is formed in it at the detail. The fender bracket 30 is welded, respectively in the inferior surface of tongue of these clinch section, and the inside of the inner flange 22, and is being fixed to the front end section of a front fender 6.

[0016] Moreover, it is bent along with the opening side edge of the lamp stowage 8, and the flange 38 which projects in this lamp stowage 8 makes it one, and is prepared in the front end flank of a front fender 6. Moreover, the hole 40 is formed in this flange 38 towards the front face of a car 1. The hole 46 with which the clip 44 which was set up from a part for that horizontal level, and which it starts, and the section 42 is formed and is later mentioned in this standup section 42 should be inserted in the fender bracket 30 on the other hand is formed.

[0017] In the production line of an automobile, the lamp unit 4 is attached after the assembly of a car body. At this time, the lamp unit 4 is inserted in, put together and arranged from that front opening in the lamp stowage 8, and that positioning immobilization is made to a car body with the pin 32 which forms a positioning device, a flange 38, a hole 40, the pin 34 that forms hanging equipment, and a clip 44, and, below, it explains positioning immobilization of the lamp unit 4 by these positioning devices and stop equipment.

[0018] First, if drawing 4 is referred to, the fixed-end section by the pins 32 and 34 of the lamp unit 4 is expanded, and is shown. These two pins 32 and 34 protrude horizontally towards the lamp housing 16 empty-vehicle object back of the lamp unit 4, respectively, and its axis of these pins 32 and 34 is mutually parallel. The pin 32 of the car-body side is inserted more in the hole 46 of a flange 38 among these. In addition, the base of a clip 44 is inserted in the standup section of the fender bracket 30 mentioned above, and the clip 44 was stopped by the fender bracket 30 in this condition, and the head of the pin 34 of another side is put.

[0019] If the cross section of the pin 32 which meets the V-V line in drawing 4 is shown in drawing 5 and this drawing is referred to, the fitting condition of a pin 32 over the hole 40 of a flange 38 is shown in the detail. In addition, these pins 32 and a hole 40 make the engagement means in a fixed means. As shown in drawing 5, the pin 32 has the cross section of an abbreviation cross-joint configuration, and the both ends of the right and left are in contact with the common-law marriage of a hole 40. On the other hand, the hole 40 is making the ellipse configuration extended to the lengthwise direction, so sees it in the cross section of this drawing, and the both ends of the upper and lower sides of a pin 32 are not in contact with the common-law marriage of a hole 40. In addition, since it sees by drawing 4, the both ends of right and left of a pin 32 have few taper angles toward the tip from the base and it has the still bigger taper angle to the point, even if the both ends of right and left of a pin 32 touch the common-law



pinching partial 44c, a pin 34 does not shift to the upper and lower sides and cross direction to a clip 44. [0026] As mentioned above, when the lamp unit 4 is inserted in in the lamp stowage 8, the lamp unit 4 is certainly positioned about the car cross direction by inserting in a pin 32 to a hole 40 by engagement to these pins 32 and a hole 40. On the other hand, by putting a pin 34 to a clip 44, the variation rate to the lamp unit 4 order and the vertical direction is restrained, and the lamp unit 4 is certainly hung on the fender bracket 30. Positioning to that car cross direction is performed to coincidence, pushing in the lamp unit 4, in case the lamp unit 4 is inserted in in the lamp stowage 8, since a pin 34 can be displaced crosswise [ car ] in case a pin 34 is put between a clip 44 at this time.

[0027] And if the lamp unit 4 is inserted in in the lamp stowage 8, since positioning of the bolthole of the conclusion implement 18 which the lamp unit 4 was fixed by hanging with a pin 34 and a clip 44 at that edge, and others mentioned above, i.e., an upper bracket, and the side bracket 20 will also be made by coincidence, a conclusion activity [ in those parts ] can be done easily after this.

[0028] According to the lamp attachment equipment of the example mentioned above, the front corner side of a car can be made to form smoothly without a level difference by positioning the lamp unit 4 correctly to the lamp stowage 8 6, i.e., the front fender which makes a shell plate member. Moreover, since it is hung and equipped with the lamp unit 4 to the fender bracket 30 which forms a car-body body, it does not need to do a conclusion activity in the car side edge section of the lamp unit 4, and can apply it also to the car which cannot secure conclusion workspace in this side edge section easily.

[0029] Moreover, the easy activity which pushes in the lamp unit 4 from the front opening in the lamp stowage 8 can perform such positioning immobilization of the lamp unit 4. Therefore, even if the fender bracket 30 is not correctly positioned to the front fender 6 depending on the car produced, dispersion by location gap can be compensated for every car, and positioning immobilization of the lamp unit 4 can always be correctly carried out into the lamp stowage 8.

[0030] Furthermore, since the both ends of right and left of a pin 32 serve as a taper configuration, good engagement of a pin 32 and a hole 40 can be obtained. Moreover, when removing the lamp unit 4 by request that it is hard to drop out carelessly after being easy to show around at 44g of guide parts and putting 34h of heads between pinching partial 34c, since 34h of heads of a pin 34 had become globular form-like, suitable tensile force can cancel the hanging easily.

[0031] In addition, a positioning fixed activity of the lamp unit 4 which was mentioned above is suitable for the mechanical activity using an industrial robot. As the lamp unit 4 inserts in and being mentioned above, at the time of doubling namely, a pin 32 Even if the axis is slightly shifted from the core of a hole 40, it can be smoothly inserted in a hole 40. Moreover, the pin 34 Since 34h of heads can be shown and it can be certainly put between a clip 44 even if the axis is slightly shifted from the core of a clip 44 The lamp unit 4 inserts in, it is not necessary to tune these locations finely, and the engagement to a pin 32 and a hole 40 and hanging of a pin 34 and a clip 44 can be made to constitute easily in a doubling activity.

[0032] this invention is not restrained by one example mentioned above, and can deform into versatility. For example, the cross section of a pin 32 may not be restricted to a cross-joint configuration as shown in drawing 5 , but may be a circle configuration and elliptical. Moreover, about a pin 34, it is good also considering the longitudinal section of 34h of heads as an arrow-head configuration. In this case, the inside configuration of pinching partial 44c of the corresponding clip 44 is also united, and is made into an arrow-head configuration. In addition, the guide side of 44g of guide parts can also be made into the taper curved surface opened for example, not only an inclination flat surface like one example but in the shape of a earthenware mortar about a clip 44.

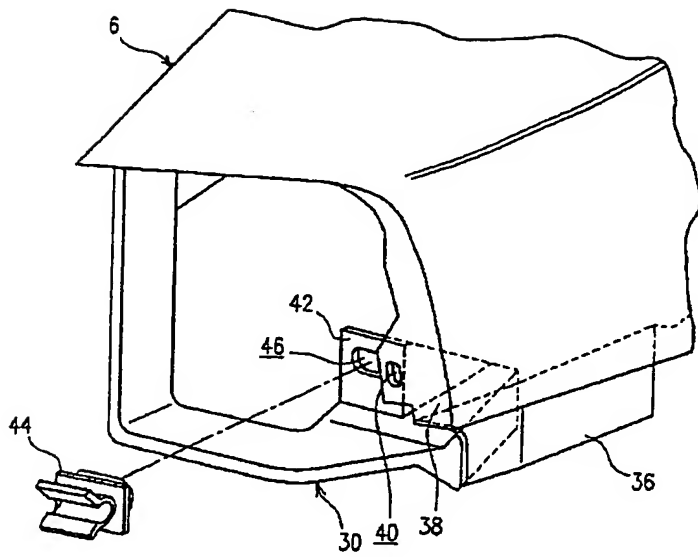
[0033] In addition, in the combination of a pin 32, a hole 40 or a pin 34, and a clip 44, a hole 40 can also be formed in a lamp housing 16, or it can start, a pin 34 can be formed [ a pin 32 can be formed in a flange 38 ] in the section 42, and a clip 44 can also be formed in a lamp housing 16. Even in this case, positioning immobilization of the lamp unit 4 can be correctly carried out by inserting the lamp unit 4 in the lamp stowage 8 like the example mentioned above.

[0034] Moreover, the attachment direction at the time of the lamp unit 4 being attached may not be restricted to a car cross direction like an example, but may be the cross direction. In this case,

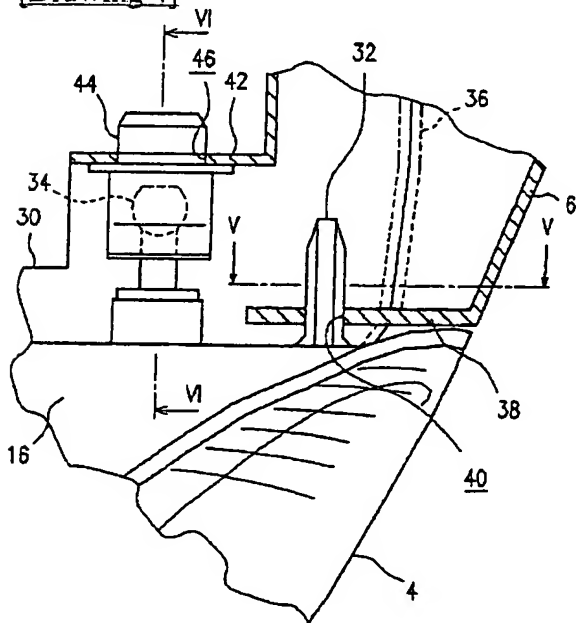
positioning of the lamp unit 4 by the pointing device is made in the cross direction of a car. In addition, as mentioned above, even when this lamp attachment equipment is applied to the rear corner section of a car, the rear corner side of a car can be smoothly formed like an example.

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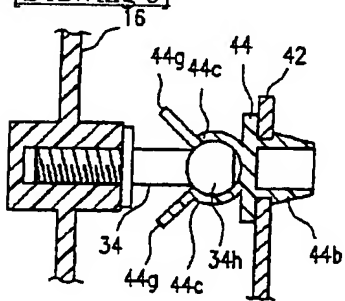
[Translation done.]



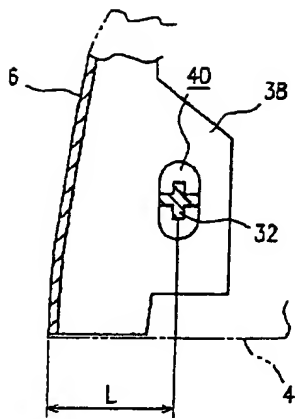
[Drawing 4]



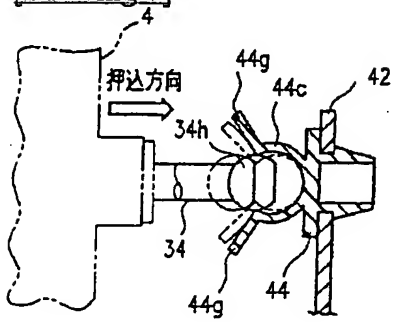
[Drawing 6]



[Drawing 5]



[Drawing 7]



[Translation done.]

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CLAIMS

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[Claim(s)]

[Claim 1] In the lamp attachment equipment of the automobile which arranges the lamp unit arranged in the corner section of a car to the shell plate member of the car which adjoins said lamp unit The pointing device which is formed between said lamp units and said shell plate members, and performs positioning to either the car cross direction or a cross direction for said lamp unit to said shell plate member, It is prepared between said lamp unit and the car-body body equipped with said shell plate member. Lamp attachment equipment of the automobile characterized by providing the hanging equipment which equips said car-body body with said lamp unit as the displacement to either the car cross direction or a cross direction being possible in the hanging location of said lamp unit to said car-body body.

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[Translation done.]